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ABSTRACT

A study was conducted to determine whether students could self-administer, self-score, and self-interpret the California Occupational Preference Survey (COPS) with the aid of a multi-media device as effectively as similar students could take the survey in the conventional group method which involves counselor administration, scoring, and interpretation. Of secondary interest were how the students used the survey and how they felt about the method of presentation. The sample of 158 students consisted of two groups, experimental and control, of ninth grade students matched for sex and reading ability. The COPS was administered, scored, and interpreted. Chi square tests were performed using scores received on the questionnaire administered to all students in the sample. It was concluded that students can self-administer, self-score, and self-interpret the COPS, with the aid of a multi-media device, as effectively, but seldom more effectively, than a similar group can take the COPS in the conventional group method involving the counselor. There appeared to be no discernable pattern in the comparisons which proved to be significant. Slight tendencies could be noted to show that the experimental group high readers recalled more high interest areas, while the control group recalled more low interest areas. (TA)

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EVALUATION OF SELF ADMINISTRATION, SELF SCORING, AND SELF INTERPRETATION OF THE CALIFORNIA OCCUPATIONAL PREFERENCE SURVEY

Patricia L. Lux
A.B., Sacramento State College, 1964

THESIS

Submitted in partial satisfaction of
the requirements for the degree of

MASTER OF SCIENCE

in

COUNSELING

at

CALIFORNIA STATE UNIVERSITY

AT SACRAMENTO

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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CALIFORNIA STATE UNIVERSITY AT SACRAMENTO

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Title: EVALUATION OF SELF ADMINISTRATION, SELF SCORING, AND SELF INTERPRETATION OF THE CALIFORNIA OCCUPATIONAL PREFERENCE SURVEY

Statement of the Problem:

The purpose of this study was to determine whether students could self-administer, self-score and self-interpret the California Occupational Preference Survey (COPS) with the aid of a multi-media device as effectively as similar students could take the survey in the conventional group method which involves counselor administration, scoring and interpretation. Of secondary interest were how the students used the survey and how they felt about the method of presentation.

Sources of data:

The sample of one-hundred-fifty-eight students consisted of two groups, experimental and control, of ninth-grade students matched for sex and reading ability. The students were selected at random from the Casa Roble High School ninth-grade class. The COPS was administered, scored and interpreted. Chi square tests were performed using scores received on the questionnaire administered to all students in the sample.

Conclusions:

It was concluded that students can self-administer, self-score and self-interpret the California Occupational Preference Survey, with the aid of a multi-media device, as effectively, but seldom more effectively, than a similar group can take the COPS in the conventional group method involving counselor administration, scoring and interpretation.

There appeared to be no discernable pattern in the comparisons which proved to be significant. Slight tendencies could be noted to show experimental high readers recall more high interest areas, while the control group recalled more low interest areas.

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Approved:

Ernest A. Baum, Chairman

Ray Banducci
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Date: May, 1974

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TABLE OF CONTENTS

CHAPTER		PAGE
LIST OF TABLES		v
I.	STATEMENT OF THE PROBLEM	1
	Lack of Use of Conventional Interest Surveys	2
	A New Approach to Interest Surveys	3
	Hypotheses of the Study	4
	Definition of Terms	7
	Organization of this Study	7
II.	REVIEW OF RELATED LITERATURE	8
	A Need for Change	9
	Learning Theory	12
	Student Participation	14
	Use of Tests in Guidance	17
	Client Participation in Testing	22
	Technology in Guidance	27
	Multi-Media Aids in Testing	30
	Summary	34
III.	METHODOLOGY	36
	The Sample	37
	The California Occupational Preference Survey (COPS)	38
	The Administration--Interpretation Device for the California Occupational Preference Survey (COPS-AID)	39
	The COPS Visuals	40
	The Student Questionnaire	40
	Procedure	41
	Statistical Analyses	43

CHAPTER PAGE

IV. RESULTS 45

Hypothesis #1 45

Hypothesis #2 47

Hypothesis #3 49

Hypothesis #4 50

Hypothesis #5 51

Hypothesis #6 53

Hypothesis #7 56

Hypothesis #8 60

Hypothesis #9 63

Hypothesis #10 65

Hypothesis #11 67

Hypothesis #12 72

Hypothesis #13 74

V. SUMMARY, LIMITATIONS, DISCUSSION AND IMPLICATIONS 76

Summary 76

Limitations 80

Discussion 81

Implications for Use of the COPS 81

Implications for Future Research 82

APPENDIX

BIBLIOGRAPHY

LIST OF TABLES

TABLE		PAGE
I.	Crosstabulation of Experimental/Control Students by Number of Correct Responses to items 1-4	46
II.	Crosstabulations of Reading Score by Group for Number of Correct Responses to Items 1-4	48
III.	Crosstabulation of Experimental/Control Students by Number of High Interest Areas Recalled	49
IV.	Crosstabulation of Experimental/Control Groups by Number of Low Interest Areas Recalled	50
V.	Crosstabulations of Reading Score by Group and Number of High Interest Areas Recalled	52
VI.	Crosstabulations of Reading Scores by Group and Number of Low Interest Areas Recalled	54
VIa.	Crosstabulation of Experimental/Control Groups by Number of Low Interest Areas Recalled for High Readers	55
VII.	Crosstabulations by Group and Reading for Number of High Interest Areas Recognized .	57
VIIa.	Crosstabulation of Reading Score/Experimental Boys by Number of High Interest Areas Recognized	58

TABLE

PAGE

VIIb. Crosstabulation of Reading Score/Experimental Group by Number of High Interest Areas Recognized 59

VIII. Crosstabulations of Group by Reading Scores for Number of Low Interest Areas Recognized 61

VIIIa. Crosstabulation of Experimental Girls/ Reading Score by Number of Low Interest Areas Recognized 62

IX. Crosstabulations of Group by Liking for Survey Presentation 64

X. Crosstabulations of Group/Sex of Subjects and Understanding COPS scores and Needing More Help to Understand 66

XI. Crosstabulations of Group/Sex and Discussion of COPS With Parents, Friends, Teachers and Counselors 69

XIa. Crosstabulations of Boy/Girl Control Groups by Discussion of COPS With Parents 70

XIb. Crosstabulation of Boy/Girl Control Groups by Discussion of COPS with Friends 71

XII. Crosstabulation of Group/Sex of Subject by Other Information Gathered, Seek More Information and Use of COPS in Class Selection 73

XIII. Crosstabulation of Group and Sex of Subject by Feeling COPS Worthwhile 75

CHAPTER I

STATEMENT OF THE PROBLEM

There has been a recent educational trend to incorporate the concept of career education into our educational programs. Major emphasis is given to acquainting students with various occupational information and helping students assess their own needs and interests.

Faced with large student ratios and an already all consuming work load, counselors have experienced some difficulty in setting up the kinds of programs which benefit career education concepts. Many of the conventional materials and methods of using them are no longer usable due to the amount of time involved or their major area of emphasis. There is a need for new materials. When counselor time is at a premium, it is necessary to devise tools and programs which will enable him to utilize his available time most effectively. Of course, the most critical objective is to provide the most meaningful situation possible for the students.

Lack of use of conventional interest surveys

Occupational interest surveys have been in existence for many years. Their use as a beneficial counseling and learning tool has been widely justified and accepted. Why then, are they not being widely used in most high schools today? The answer lies in that horrendous villain--time.

Dut to the large population of most suburban high schools, counselors find their routine paperwork takes a great deal of time. Any program they initiate also takes a great deal of time. Interest surveys fit into this time-consuming category. Surveys and tests of this sort are usually given to the entire class. The counselor's time is involved in making arrangements for location, obtaining materials and reaching the students. Once he begins administration he is often involved from several hours to several days. The usual scoring procedure involves computer scoring away from the school facility. One to two weeks is a customary length to wait for this service. When the counselor is ready to interpret the results to the students, he must again plan to spend a great deal of time. One of the major losses occurs when the student is absent and misses his group interpretation. Oftentimes this student never receives his results. The counselor has spent so much time regarding the interest survey he may find difficulty justifying even further time spent assisting his students in using the results.

Another factor overlooked in this method of survey administration is the need or interest factor. When the student is suddenly called from his class to take an interest survey he may or may not feel this is something he needs at this point in his life. This situation is further compounded by having to wait for the results. Even the student who is highly motivated at the time the survey is administered may find his interest no longer exists by the time results are available.

A new approach for interest surveys

In conjunction with the current educational trend toward individualization of instruction, a new tool for use with interest surveys has been developed. The purpose of this study is to test this tool to determine if, indeed, it can be used at least as effectively as the conventional method.

This tool is called the Administration-Interpretation Device (AID) for the California Occupational Preference Survey (COPS). The COPS/AID consists of a 35mm filmstrip and an accompanying sound cassette tape which are used in a machine such as the Hitachi SPR770, the Singer Autovance or the Dukaine automatic cassette-projector. The COPS/AID is used individually by the student taking the survey.

A normal procedural sequence could be as follows:

A student approaches his counselor stating he has need to determine his occupational interests. The counselor refers him to the COPS and the COPS/AID in the Career

Information Center or Counseling office. The student turns on the machine and begins the survey. The filmstrip and accompanying script offer the student information about the survey and how to take it. When the student reaches the point where he is to respond to the individual items on the survey, he presses the automatic pause button and the machine stops. When the student has answered all of the survey items he resumes operation of the machine. With the aid of the information contained in the COPS/AID, the student proceeds to self-score and self-interpret his survey. The COPS/AID gives further information concerning how the student can now use this information and where to seek supplementary information. It also encourages him to see his counselor if he has any questions. The normal time required for this process is one hour.

When the student returns with this information, his counselor can adequately assist him in class selection, career planning or other goals the counselee may have. Perhaps the most important advantage of this approach is the time element. The student is able to obtain the information he needs when he needs it. The counselor, because he is not involved in time- consuming administration and interpretation, can readily justify the time he now spends with his students in implementing these results.

Hypotheses of the study

The purpose of this study is to determine whether

students can self-administer, self-score and self-interpret the California Occupational Preference Survey (COPS) with the aid of a multi-media device, as effectively as similar students can take the COPS in the conventional group method which involves counselor administration, scoring and interpretation.

The following null hypotheses were tested:

1. There is no significant difference in the retention of specific information presented in the California Occupational Preference Survey (COPS) between the experimental group (which self-administered, self-scored and self-interpreted the COPS with the aid of a multi-media device) and the control group (which took the COPS in the conventional group method involving counselor administration, scoring and interpretation).
2. There is no significant difference between high and low readers within and between control and experimental groups in the retention of specific information presented in the COPS.
3. There is no significant difference between the control and experimental groups in the number of high interest areas recalled.
4. There is no significant difference between the control and experimental groups in the number of low interest areas recalled.
5. There is no significant difference in number of high interest areas recalled between high and low readers, boys and girls, within and between the control and experimental groups.

6. There is no significant difference in number of low interest areas recalled between high and low readers, boys and girls, within and between the control and experimental groups.
7. There is no significant difference in the number of high interest areas recognized between high and low readers, boys and girls, within and between the control and experimental groups.
8. There is no significant difference in the number of low interest areas recognized between high and low readers, boys and girls within and between the control and experimental groups.
9. Reading ability or sex of subject has no significant effect on how well the students like their method of survey presentation.
10. There is no significant difference between the control and experimental groups in how well they understood their COPS scores.
11. There is no significant difference between the control group and the experimental group in the amount they discussed their COPS results with parents, teachers, friends or counselors.
12. There is no significant difference between the control and experimental groups in how they use their COPS results.
13. There is no significant difference between the control and experimental groups regarding their feeling that the COPS is worthwhile.

Definition of terms

1. COPS refers to the California Occupational Preference Survey. It is further discussed in Chapter III.

2. COPS/ATD refers to the Administration-Interpretation Device for the California Occupational Preference Survey discussed in Chapter III.

3. High readers are those who scored above thirty-five on the Stanford Achievement Test, Form X, Advanced Form.

4. Low readers are those who scored below thirty-five on the Stanford Achievement Test, Form X, Advanced Form

Organization of this study

The remainder of this paper will be divided into four chapters. Chapter II is a review of the related literature. Chapter III is a description of the sample, instrumentation, procedures and statistical procedures used. Chapter IV contains the results of the study. Chapter V is devoted to a discussion of the results, limitations, and implications for use of the COPS and for future research.

CHAPTER II

REVIEW OF RELATED LITERATURE

Counselors in our public high schools are faced with nearly overwhelming tasks to perform. Many counselor caseloads are in excess of four-hundred students. The counselor has relatively few hours each day to provide meaningful services to his students in the traditional counselor-student role. This traditional role involves a 1:1 relationship between counselor and student. The role of the counselor must change if he is to provide meaningful services to his entire caseload.

A dominant theme emanating from current learning theory literature is the concept of student participation in the learning situation. It is felt (Weisgerber, 1972; Wight, 1970; Hamilton and Jones, 1970; Bordin, 1955) that student participation stimulates learning, interest and retention. Student participation in the guidance function and particularly in the testing program is an area which this author feels would be a great asset to counseling and guidance programs.

Counselors who can effectively utilize student participation, possibly through the use of newly developed technological and multi-media devices will be taking a step toward providing more effective services to their students. In order to explore these areas of concern, this chapter has been divided into the following seven categories:

1. A Need for Change
2. Learning Theory
3. Student Participation
4. Use of Tests in Guidance
5. Client Participation in Testing
6. Technology in Guidance
7. Multi-Media Aids in Testing

A need for change

There needs to be a change in guidance and counseling if current demands and expectations are to be met. Further emphasis of this point is contained within this section.

The Sixth Annual Report of the National Advisory Council on Vocational Education is titled "Counseling and Guidance: A Call for Change." In his introduction to the Sixth Annual Report, Chairman Davenport states, "The Council has discovered that the general quality of counseling and guidance services today is greatly in need of improvement. The counseling and guidance profession is not keeping up with the latest developments in our educational system." (Davenport, 1972)

The report includes numerous reasons for the current lack of adequate guidance, and they offer several solutions. Two of the most obvious problems are the lack of pertinent training and outside work experience of school counselors. Many high school counselors have had no exposure to the world of work outside the school system. This has a tendency to create a "tunnel vision" effect regarding

vocational information. These counselors are not usually offered courses in their counselor training programs which adequately fill this need.

The Sixth Annual Report claims "Counselors have been more victims than villains . . ." (Davenport, 1972, p.5) They list many sources of responsibility, including:

- "State Departments of Education for not making paid work experience a requirement for counselor certification." and - "Counselor education institutions which make only one course in occupational guidance required in the graduate programs of counselor preparation."

Provided that these situations were remedied, counselors are still faced with many other problems, the least of which is high student-counselor ratios. The report lists the public high school student-counselor ratio in 1972 as 475:1 outside Standard Metropolitan Statistical Areas (SMSA). (Davenport, 1972, p.3) This condition, together with the fact that today's students are actively seeking relevant vocational information, presents a tremendous logistical problem in providing relevant information to these students. One solution is that counselors might initiate opportunities for the students to help themselves. New approaches need to be implemented whereby the counselor, acting as a resource facilitator can withdraw from simple routine clerical functions and provide tools and an environment which will enable his enormous caseload to benefit to the highest degree from the information he has to offer.

The Advisory Council offers several recommendations, some of which are:

" - State Departments of Education require work experience outside of education for all school counselors who work with students and prospective students of vocational education.

- Responsible decision-makers embark on an immediate major campaign designed to upgrade the vocational knowledge and career guidance skills of currently employed counselors.

- Concerted efforts, including computerized guidance systems, be made to disseminate more accurate, timely data to counselors regarding vocational and technical training and job opportunities.

- Immediate efforts be made to lower the counselor-pupil ratio in elementary, secondary, and post-secondary educational institutions to a point where all who need counseling and guidance services will, in fact, receive them, while simultaneously encouraging more guidance in groups.

- Career development programs be considered a major component in Career Education, both in legislation and in operating systems." (Davenport, 1972, p.6-7)

"In the past two decades, educational assessment, evaluation and appraisal have undergone profound changes." (Beatty, 1969, p.2) However, further changes are necessary if counseling and guidance are to perform a meaningful function in today's society.

Learning theory

Since counseling and guidance is a learning situation for students, it seems appropriate to examine learning theory in considering new programs. It is for this reason learning theory is included in this review.

Interest and need appear to be the basic conditions under which learning occurs. (Cleary, 1968; Hall, 1966; Holt, 1967; Wight, 1970; Weisgerber, 1972) Holt feels children learn through their own observations, experiences and thought processes. Too often we contaminate the full development of a person's capacity to learn by supposedly teaching him how to think. We fill him so full of examples and directions his inherent learning ability is stifled.

Holt has spent fifteen years observing children and has learned much about how they learn. He feels learning cannot occur as well in a forced situation. He says, " . . . vivid, vital, pleasurable experiences are the easiest to remember." (Holt, 1967, p. ix)

"We teachers--perhaps all human beings--are in the grip of an astonishing delusion. We think that we can take a picture, a structure, a working model of something, constructed in our minds out of long experience and familiarity, and by turning that model into a string of words, transplant it whole into the mind of someone else." (Holt, 1967, p.178) Although this method of explaining might work once in a while, most of the time it does not increase understanding and may perhaps even lessen it.

Holt states " . . . The only way children can learn to get meaning out of symbols, to turn other people's symbols into a kind of reality or a mental model of reality, is by learning first to turn their own reality into symbols." He further states that children " . . . ought to be in control of their own learning . . . . " (Holt, 1967, p. 181)

In recent years great emphasis has been placed upon "individualized" instruction. Studies and reports concerning varied efforts in this area are numerous and generally reflect a great deal of success. The basic idea is that each student is allowed to engage in the learning process independently. He usually has a booklet which he follows. Basically, the student reads the information, responds to a quiz, checks his answer against the correct answer and then proceeds when his answer is right. This system allows each student to progress at his own pace.

Many studies have been conducted which center on the theory that immediate knowledge of results aids learning. (Kingsley and Garry, 1961) Because the student receives immediate feedback regarding the correct response, it is that correct response which is retained by the student. Should his response be incorrect, he goes back over the material and goes no further until he responds correctly. With this method, only the correct response is generally retained; the student does not retain an incorrect response, only to learn at a later time that it is incorrect.

The theory of immediate feedback has gained much

popularity and is currently being used in a variety of subject areas. Immediate feedback of interest survey results is one concern of this study.

Student participation

Student participation is a major factor in this study, therefore, this section was included to present current emphasis and developments in this area.

> "You cannot teach a man anything.
> You can only help him to find it
> within himself."
>
> Galileo (Weisgerber, 1972)

> "Rather than a system that places emphasis on academic standards and intellectual abilities, we need a system designed to develop the whole person, the full potentialities of each individual student. Rather than competing with one another for grades in a lock-step system, students should be working together to explore, identify and develop their individual potentialities, interests and abilities. In such a system nearly everyone could succeed and find a place in society where he could contribute, and be respected, and respect himself." (Wight, 1970, p.5)

Participative education allows the student to become involved in the learning process. He helps set the goals and determine approaches to meet these goals. "If they (students) are to develop self-confidence and self-esteem, they must have success experiences in self-initiated activities. (Wight, 1970, p.15)

Student participation in the learning process has gained much popularity in recent years. Participation has not been limited to individualized instruction, but may be found in all aspects of the educative process. Weisgerber has

compiled a comprehensive report which lists many of the materials which have been developed for use in participative education. (Weisgerber, 1972) Student participation has become especially popular in the field of vocational education and career guidance.

Riverton Junior High School in Riverton, Wyoming (Daniel, 1971) has developed several packets which are representative of the new materials being used in participative education. The packets--mostly vocational, are designed to prepare the student for applying for work. They are very complete, self-explanatory and easy to follow. The student must assume the initiative and responsibility for completing the packet and getting the most out of it.

The Oregon Board of Education has developed a set of lesson plans entitled "Teacher Guide to SUTOE (Self-Understanding Through Occupational Exploration). (Oregon Board of Education, 1969) Unit II, Self-appraisal and Self-understanding, involves a general self-assessment of the students. It is suggested that the teacher enlist the aid of the counseling staff in administering tests and inventories. The student will work with the teacher or counselor to interpret these scores which he will combine with other information about himself. After he has compiled a notebook of information about himself, he will write a self-profile (the unit contains a suggested format). The students will then apply this information to present and future educational, occupational plans and social skills. There is strong emphasis on student participation. The

student gathers, assesses and projects the information he gathers.

Hamilton and Jones state "An individual has three major needs when he confronts a particular educational/occupational choice point--to assess personal characteristics in terms of his developed abilities, aptitudes and interests . . . ; to acquire information about educational and occupational alternatives; and to learn to apply a strategy for processing this information into personal goals, plans and actions." (Hamilton and Jones, 1970, p.1)

In presenting basic guidelines for construction of "Learning Activity Packets" (LAP) Glenday asserts that two of the basic assumptions concerning the use of LAPs are:

- That through use of LAPs, students will become more self-directed and independent learners, better able in the future to deal with new or original problems.

- That in providing for student success, the individual's self-concept as a learner is enhanced. (Glenday, 1970)

Participative education is not merely the implementation of individualized instructional media--it is a whole new attitude which, if it is to succeed, must permeate the entire educational system. By allowing the student to assume more responsibility for his education. " . . . he can and will, if given the opportunity, establish realistic learning goals, . . . (which) will be modified with experience, and . . . as he learns from experience in such a system he will incorporate the learning system as a way of life and continue to use it beyond and outside the educational setting." (Wight, 1970,

p. 15) He will no longer tolerate the previous educational model of passive listening and acceptance--he will not sit around and wait for the world to be brought to him.

Use of tests in guidance

Since this study is advocating a change in the area of testing in guidance, it was felt an overview of current testing practices and theories should be included.

"In the past two decades, educational assessment, evaluation and appraisal have undergone profound changes." (Beatty, 1969, p. 2) Further changes are necessary. There is much room for improvement in all areas of testing--and especially regarding administration and interpretation techniques.

Tyler advocates that tests be used to promote and guide the development of the student rather than sort him into courses, curricular tracks, admission to college and the like. " . . . from the standpoint of the student . . . (three) kinds of testing likely to have the greatest constructive impact are those that:

1. Help the student identify his potential talents as well as needs and opportunities for further education.
2. Aid the student in exploring occupational and related educational possibilities.
3. Help him find the ways in which he can most effectively learn what he is seeking to learn." (Tyler, 1969, p.6)

There is generally a negative attitude toward testing. Group administered tests are a commonplace occurrence with today's students. Group interpretation of tests is also common. "Group procedures are commonly used to explain the purpose of testing, to identify the specific tests used, and to introduce students to the norm groups with which they will be compared and the types of scores to be used in the interpretations." (Lundy, 1969, p.16)

Goslin and Glass (1967) found in their study of 10,000 students that the

> "higher the reported score on an intelligence test, the higher the student's estimate of his own intelligence, and the higher his educational aspirations. Most pertinent to counseling was the finding that high self-estimators tended to have high educational aspirations, even when the measured intelligence is something different." (Lundy, 1969, p.17)

Lundy emphasizes that "it is not the scores themselves which are important, but the counselee's perceptions of them, and that they must be communicated at a level that is meaningful to the counselee." (Lundy, 1969, p.17)

Counselors have mixed feelings about tests and their use in a counseling situation. "Some counselors feel that testing disturbs the counseling relationship and interferes with the release of growth within the counselee, and that the use of tests casts the counselor into the role of an authority figure, and promotes counselee dependence upon the counselor or upon the tests." (Lundy, 1969, p.18)

"Differences of motivation may create unstandardized

conditions even under the best administrative arrangements where the pupils have been seated properly, the time limits have been rigorously observed, the handling of test material has been specified, and directions have been read word for word as given in the manual." (Berdie, and others, 1963, p.96)

Test publishers recognize motivation as a factor in testing and because they offer suggestions on testing conditions they assume motivation will be constant from one testing administration to another. Experience shows us this is not so. Many factors can influence motivation: the test administrator, weather, time of day, activities which preceded or are due to follow the test, physical condition of student, etc.

Wesman (1960) states "There is reason to believe that greater emphasis has been given to the tests themselves than to their utilization.

> "In allocating money to individual communities, the state might well consider whether greater good may result from using significant sums for development of competent interpreters, via inservice training courses and the like, than from prodigal underwriting of test administration where test interpretation is likely to be naive or misguided. Wisdom in the utilization of fewer bits of well understood information may pay greater dividends than unsophisticated treatment of ill-digested masses of test scores." (Goldman, 1971, p.2)

Different schools or institutions are set up in various ways. "The characteristics of the setting inevitably affect

the way in which counseling in general and testing in particular are carried on. . . . the effects may be limits, such as those which make it difficult to use as many tests as one would like because of the cost or the limits of a heavy caseload, thus making it impossible to do extensive test interpretation except for a small number of cases." (Goldman, 1971, p.14)

Some counselors use tests more than others--depending upon their orientation or their own personal approach. Counselors also differ in confidence in which they place in tests.

Since the major purpose of counseling is to help individuals in decision-making, planning for future, and choosing among alternative courses of action in the world of reality, testing can be a big help by giving the individual "information about himself (including clarification and confirmation of previous information) in relation to the facts about an occupational or educational program." (Goldman, 1971, p.26)

> "Quite frequently, especially with adolescents, who come voluntarily for counseling, lack of confidence in their ability to make decisions leads to an attempt to become dependent on the counselor." (Goldman, p.29)

This is not always the case--there is often a real need for information. Counselors should be sensitive enough to determine which of the above may apply to the counselee and be ready to assist him.

> "It sometimes happens that a set of test data adds no new information but contributes to the organization of the client's concept of himself in relation to whatever decisions are in focus. Thus an interest inventory of the Kuder Preference Record type may tell the client little or nothing that he doesn't already know, but it sometimes provides a more sharply defined picutre of his interests than he had before. The feeling of satisfaction which the individual gains from recognizing his perceptions in a new and clearer form can be a very worthwhile outcome of counseling." (Goldman, 1971, p.29)

This is the major reason many schools offer interest inventories to eighth- and ninth-graders. By categorizing this information, the student may be more prepared to select his classes.

Prediger (1972) sums up the future of tests in counseling:

> "In the past, test use in guidance has been more or less a hothouse experience devoid of much contact with life in the real world. But business as usual is no longer acceptable in today's guidance marketplace. If tests are to make a difference in a student's development, and I am certain they can, they must be embedded in an experientially based, developmental guidance program.
>
> "Both career development and career decision-making theory suggest that the role of tests in career guidance is threefold: (a) to simulate, broaden, and focus career exploration; (b) to stimulate exploration of self in relation to career, and (c) to provide predictive information relative to different career choice options.
>
> "Test data must undergo a series of transformations if they are to have an impact on career development. First,

> test data must be transformed into information relevant to counseling and guidance. This information must then be transformed into exploratory activities and self-evaluated experiences. Finally, these experiences must be transformed into career plans and decisions. Responsibility for these transformations (in the order they have been presented) primarily rests with test publishers, counselors and counselees." (Prediger, 1972, pp.426-9)

Client participation in testing

Documented evidence of client participation in testing is extremely limited, yet it seems logical that if the client is actively involved the experience would certainly be more meaningful. Client participation can occur in several aspects of the testing situation--test selection, administration, scoring, interpretation or use of test results.

Bordin (1955) presents the following cases for and against client participation in test selection:

Arguments in favor of client participation:

"1. Clients may not return for further interviews if tests are planned without their active participation." The reasons may be that the counselor has not adequately discussed relationship of tests to the counselee's problem. It may also be due to the fact that the counselee is not emotionally ready to face a test or the unknown test results.

2. "Clients who feel convinced of the purpose of testing can gain insights from self-observation during testing."

3. "Motivation to do his best on tests is strongest when the individual sees the relationship between them and his goals."

4. "To the extent that the client has participated in the decisions to use tests, he will be more ready to accept later interpretations with a minimum of defensiveness."

5. "To the extent that a client can accept some responsibility for the test planning process, to that extent he has an opportunity to free himself from dependence on others, particularly adults."

6. "Client selects tests more appropriate to his needs."

Arguments against client participation:

1. "All this is much ado about nothing; it makes little difference what process is used so long as the most appropriate tests are administered and

2. "Because decisions as to the use of tests require knowledge and competencies which few clients have in this area, they must be made by the counselor."

3. "The client is much too emotionally involved with his problems to make objective decisions as to the testing part of planning."

4. "Dependency and indecisiveness are not problems with which the counselor legitimately should deal; they more properly are the province of psychotherapy." (Goldman, 1971, p.41)

Seeman (1948) conducted a research study regarding

client participation in fifty interviews with college students who were self-referred for vocational counseling. The two counselors used a client self-selection method, described thus:

> "Client was given the responsibility for choosing the tests. Counselor limited his function to describing the values and limitations of each test in a neutral, non-persuasive manner. Appropriate checks were made using a control sample of one-hundred-twenty students counseled by four different counselors, to insure that the fifty students were representative of all counselees at that Bureau and that the two counselors did indeed use a client self-selection approach. The experimental subjects selected a mean number of 5.71 tests out of the more than twenty-five available, whereas the controls took a mean of 4.70 tests each. This difference was not found to be significant, but the variety of tests taken was significantly greater for the experimental group, suggesting that these subjects were more discriminating as to individual needs than were the counselors of the control subjects, who may have had more of a stereotyped pattern for selecting tests. Seeman also reports that, of the tests judged to be suitable for making either actuarial or clinical predictions of the client's stated objectives, clients actually selected such tests in 93.2 percent of the possible cases. In one further check, it was found that 'technical' students selected a spatial relations test in significantly more cases than did 'social science' students which is in keeping with the hypothesis that students make appropriate choices of tests." (Goldman, 1971, p.333)

Although some counselors may feel that counselees should not be required to select the specific test he should take, he could decide the type of test. He is basically interested in the implications a test might have for him. If he is

concerned about which occupational area he might pursue--he will voice this concern and request a test which would answer his questions. He would not likely come to his counselor and ask to take, for example, the Strong Vocational Interest Blank.

Some institutions test routinely--same tests and sequence in counseling situations. More ideally, testing should be done as needed--need being determined by individual's needs as well as his progress in counseling.

Bixler and Bixler, in 1946, offered the following arguments in favor of client participation in test reporting interviews.

"1. The more the client participates in teasing meaning out of test scores, the more likely will he be to bring in new information about himself from other sources and to produce new insights regarding the significance of all the data. This should then lead to more valid interpretations and therefore to better decisions and plans.

2. The more he himself contributes to the conclusions reached from tests, the more accepting will the client be of those conclusions and of their implications regarding his future activities.

3. The more a client participates in the process of drawing inferences and hypotheses from his test scores, the more involved he will become. This in turn should lead to greater effectiveness of learning and greater retention of what is learned." (Goldman, 1971, p.390)

Leo Goldman offers these hypothetical arguments against client participation:

"1. Drawing implications and making predictions and other kinds of interpretation from test data requires the knowledge, skills and degree of objectivity which counselors are a good deal more likely to possess than their clients.

2. It is the responsibility of the counselor, and an important element in his professional contribution to his clients, to do the thinking and research leading up to the finished interpretation. To ask clients to share this responsibility is to slough off a part of the counselor's job.

3. Effective learning about oneself in counseling is a result not of the amount of client participation in making the interpretation but of the counselor's skill in transmitting valid information." (Goldman, 1971, p.390)

Rogers' (1954) study provides some modest support for the value of greater client participation.

> "Working also with college students, he found that his two groups both showed significant increases in self-knowledge, but there were no differences between those who received their test interpretations by the "Test-Centered" method (client participation not encouraged and no effort made to draw in nontest evidence) and those counseled by the "Self-Evaluative" method (client participation encouraged throughout, and efforts made to bring in nontest data whenever appropriate). However, a difference was found when the actual amount of participation was brought into the picture. Each of the groups--the Test-Centered and the Self-Evaluative--was subdivided into two groups, those who had participated actively in the interview and those who hadn't. Of the four subgroups, the only one which showed

> a significant increase in self-knowledge was that made up of those who actually did participate in the participation-encouraged type of interview, the 'Self-Evaluative.' Finally, Rogers points out one aspect of his study that may be partly responsible for the something-less-than-overwhelming results of his study, namely, the fact that one counselor did all the interviews, with the result that he may not have differentiated enough the actual approaches and techniques used with the two groups." (Goldman, 1971, p.393)

Technology in guidance

At a time when nearly all phases of our lives are touched in some way by technology, it seems only natural that we will find technology at work in guidance. Technology is a rather broad term which includes nearly all multi-media areas such as tape recorders, film projectors, T.V., video tapes and other devices such as computers.

The use of computers in education and especially in guidance is a subject which has received widespread concern, both for and against, in recent years. Since the specific use of computers is not a concern of this study, this area will not be covered here. This study is particularly concerned with the use of multi-media aids in the testing process.

The fact that technology is "the thing" in guidance today is evidenced by the November 1970 issue of The Personnel and Guidance Journal which is devoted entirely to "Technology in Guidance."

Garry Walz (1970) feels that "Guidance technology has

the potential to enable counselors to reach new goals and to accomplish old goals in new ways. The appropriate guidance use of technology, however, is not just one of designing machines but rather of discovering how to use technology to realize counselors' personal and societal goals in particular settings. The future of guidance could well depend on the capacity of the counseling profession to utilize technology effectively." (Walz, 1970, p.175) He goes on to state "Admittedly, technology can provide a degree of control which is frightening. But technology can also be the basis of an approach that provides for a high degree of accountability and consultation and leads to a greater involvement by the public in broadly representative decision-making. That is, technology can be used to involve people more fully in making decisions affecting their lives. It is essentially a neuter tool for which we can provide an identity." (Walz, 1970, p.180)

Norman Kagan (1970) also feels that "Multi-media, then, can be very useful in the hands of guidance workers. It can serve the guidance worker as an effective extension of himself, as a creative device in guidance consultation, and as a means, at last, to significantly help us achieve the noble traditional counseling goals of improving personal satisfaction and effectiveness in human interaction." (Kagan, 1970, p.203)

Some of the ways in which he feels multi-media can be used effectively are:

1. Films, tapes, T.V., video tape, etc., can be used in a teaching session where the students have a need for certain information, such as occupational information, etc.

2. Multi-media can be used to expand upon the counselors' presentations, providing emphasis wherever necessary, for example, handouts, overhead projectors, filmstrip and sound presentations.

3. Multi-media can be used to help teachers and students to identify, discuss and solve problem behavior.

> "Enactment of the various stress situations on film, video-tape or audio-tape can serve not only to recreate the situation but in the format of media reproduce the potentially threatening situation within the relative safety of an electron tube or film projector. Situations can thus be created which, in life are too threatening to be dealt with effectively but through simulation can be safely examined and alternative responses considered and even practiced." (Kagan, 1970, p.199)

4. Video tapes can not only be used effectively by filming a counseling situation and then playing it back, but by filming episodes involving actors simulating various types of affective behavior and emotions, you can deal with more situations.

The Rochester Career Guidance Project (Youst, 1970, p.219) has utilized modern technology to develop and fully utilize a comprehensive microfilm file containing occupational information. Other materials they have developed include what they call Life Career Studies. These are "slide audio stories of people at work and at home . . . .

In addition to providing a role model, the materials attempt to convey samples of the kinds of decisons workers are faced with on their jobs." (Youst, 1970, p.219) Students were involved by going to actual job sites to answer questions they had. These students took slides and tape recorded conversations which they brought back to the classroom.

Today's youth have been fed from birth on technology. The impact of television alone is astounding. We live in a world of Sesame Street and moon shots. Our youth have grown to expect instant and complete information. Although they may be impatient in waiting for information they are usually anxious to become actively involved in obtaining it.

As Tiedeman (1970) so aptly puts it "An illusive and probably threatening aspect of the storm (or revolution, if you really believe today's experience) we daily live in 1970 is realization that one way or mono-converging thinking is insufficient. There is more to knowing!" (Tiedeman, 1970, p.234)

Multi-media aids in testing

At a time when administrators and parents are making demands for increased counseling services and accountability, counselors are seeking new methods of meeting these demands. Testing, although seen as a useful tool by most counselors, appears to be one of the first things to go when a workload gets heavy. The common response is "We don't have the time."

Although most tests have been computer scored for several

years now, the time element is involved in the administration and interpretation. In many instances the high student absentee rate or lack of cooperation on the part of the teachers necessitates multiple interpretation sessions.

Many counselors feel the administration and interpretation sessions could be handled by paraprofessional aides, thereby freeing the counselors to discuss the implications and possible applications of the test results with students on an individual basis.

In an attempt to improve the testing situations, many counselors have devised multi-media aids for use in test administration, scoring and/or interpretation. One such aid, developed by Thomas Jacobsen, involves the use of an overhead projector in a group situation. His transparencies provide supplemental information regarding administration, scoring and interpretation of either the Ohio Vocational Interest Survey or the California Occupational Preference Survey. These aids, which are available from the test publishers, not only speed the testing situation, but provide additional information which enhances the students' understanding of the testing process.

"There are probably any number of homemade devices in use around the country, although very few have been described in the literature." (Goldman, 1971, p.426)

Goldman feels that time spent by the counselors in preparing the multi-media aids would result in less time needed to report the scores to the students. "Therefore, more time would be available to help these individuals to

digest the information and do something with it." (Goldman, 1971, p.427)

It has been argued that the use of multi-media aids removes the counselor from the scene and is therefore doing the clients or students a disservice. The counter-argument is that by the effective use of multi-media aids, the counselor can use his time more effectively. Because he is not tied up in reading test administration instructions, he can be involved in more individual counseling. Goldman stresses that multi-media aids "are never a substitute for counseling, but only an aid; if anything, it might well be that they would increase the demand for individual counseling, which has been found to be the case with group guidance activities in general." (Goldman, 1971, p.427)

Collins (1972) "demonstrated that a media treatment for test score reporting is capable of facilitating subject accuracy of self-knowledge, simulating the presence of a live counselor, and freeing the counselor for professional services other than test score reporting." (Collins, 1972, p.189)

Stoker, and others (1968) conducted a study at Florida State University which was designed to determine whether testing could be done effectively via television. Two experimental groups of eleventh-grade students were given the Occupational Interest Survey (OII), Advanced Form, in a group situation. "Items from the inventory were reproduced on slides and projected on a 3' x 5' screen. The slide format conformed to the format of a T.V. screen. The illumination

level maintained in the testing room was comparable to that maintained for T.V. viewing." (Stoker, 1968,p.2) The items were exposed one at a time on the screen. The time of exposure was twelve seconds for the XN group and eight seconds for the XP group.

"Coefficients of concordance (W) were computed on occupational rankings yielded on the criterion measure, and the control and normally-timed experimental administrations; a separated set of coefficients was computed on the above sets of rankings and the rankings from the experimental-paced administration. The distribution of W's revealed that at least three-quarters of them were equal to or greater than .80, and approximately ninety percent of all W's were significant at the .05 level of confidence. Rho coefficients between pairs of rankings revealed that seventy-five to eighty percent of all coefficients computed between pairs of control and the two experimental rankings were equal to or greater than .80. A sign test revealed that rho coefficients between the control and experimental normally-timed rankings were generally greater, but not significantly so, than the coefficients between the control and experimental paced rankings on the OII.

The analysis lends support to the belief that vocational interest inventories such as the OII yield similar sets of rankings when the items are administered by projecting them on a screen as when the items are presented in booklet form. No evidence was presented that dealt with the distribution of coefficients based on two normal administrations of the

OII: consequently the evaluation of obtained distributions of coefficients computed on control and experimental normally timed administrations, and control and experimental paced administrations in terms of the distribution of coefficients between two normal administrations was not possible." (Stoker, 1968, pp.7-8)

Summary

The role and emphasis of the counselor is changing. Change is imperative if the counselor intends to survive in a world which is also changing. Old methods and tools need to be re-evaluated and, if necessary, set aside to clear the way for the development and use of new ones which will more adequately meet the counselors' needs.

The current trend toward individualized instruction has had some influence on counseling. This influence is seen in the development of individualized Learning Activity Packets (LAPS) for various learning areas with which counselors are involved. It has been found that student participation can enhance learning. Since the LAPS extend the services of the counselor and provide a much needed service to the student they are considered a useful tool. Their implementation throughout the country is increasing sharply, as evidenced in current literature.

Testing is one of the primary counseling functions. Due to changes in counseling workload and large student ratios many schools have all but dropped their testing programs (except for that testing which is required by the state).

Although literature specifically dealing with client participation in testing is very limited, there is some evidence to show this is a distinct possibility for the future. Many counselors, in an attempt to serve their students more effectively, are developing tools for client participation in testing.

In an age when technology permeates nearly all facets of our lives, it seems only appropriate that it be utilized to benefit counseling and guidance functions.

CHAPTER III

METHODOLOGY

Ninth-grade students enrolled at Casa Roble High School in the San Juan Unified School District were selected as the population for this study. The students were given the California Occupational Preference Survey (COPS) and received an interpretation of the results. The control group testing and interpretation was administered in the conventional group situation. The experimental group administered, scored and interpreted their survey by themselves with the aid of an audio-visual device. Questionnaires were completed by both groups. Statistical analyses were performed from data on the questionnaires.

The design and methodology of this study is summarized in the following seven divisions of this chapter:

1. The Sample
2. The California Occupational Preference Survey
3. The Administration--Interpretation Device for the California Occupational Preference Survey (COPS-AID)
4. The California Occupational Preference Survey Visuals
5. The Questionnaire
6. Procedure
7. Statistical Analyses

The Sample

Two groups, matched for sex and reading level, were selected by use of a table of random numbers, from a list of all Casa Roble High School ninth-grade scudents who had taken the Stanford Achievement Test (SAT) administered by the San Juan School District the year before. Approximately eighty-five percent of the current ninth-grade class had taken the SAT. The groups used in this study had the following demographic characteristics:

Original sample--prior to testing

	Girls	Average Reading Score*	Boys	Average Reading Score	Total	Average Reading Score
Control	55	35.5	52	31.7	107	33.7
Experimental	54	35.0	51	33.4	106	34.2

Following questionnaire--sample upon which study is based.

	Girls	Average Reading Score*	Boys	Average Reading Score	Total	Average Reading Score
Control	42	36.1	33	34.2	75	35.2
Experimental	42	34.9	41	34.9	83	36.2

* Based on scores achieved on the Stanford Achievement Test, Form X, Advanced Form.

The final number of students included in this study is less than the original sample due to unsuccessful attempts to locate these students for completion of all phases of the study. Repeated attempts to reach the students through their teachers were made.

The California Occupational Preference Survey (COPS)

The interest survey used in this study is the California Occupational Preference Survey (COPS). The COPS lists one-hundred-sixty-eight activities which relate to various jobs. The students respond to each activity by indicating whether they like it very much, like it moderately or dislike it very much, e.g., "decorate cakes in a bakery." (Appendix A) The scores are presented in graph form indicating the student's percentile ranking in each of fourteen occupational categories, e.g., "science preferences." (Appendix B)

The student's profile sheet is accompanied by an explanation of how to interpret the profile and lists sample occupations in each of the fourteen categories, e.g., "actuary." The Dictionary of Occupational Titles (D.O.T.) code and page numbers are included for each occupation. Those occupations which are included in the Vital Information for Education and Work (VIEW) system are also indicated.

The COPS manual describes validity for the COPS as being demonstrated through factarial confirmation of the structure of occupational interest measured by the COPS. An experimental set of interest items was administered and the resulting scores submitted to factor analysis.

Evidence of COPS validity in terms of the relationship between COPS scales and occupational choice was provided by a wide variety of Profiles which were obtained from

samples of individuals who have already chosen a specific occupation. These profiles were considered as providing partial evidence for validity of the COPS.

Two methods of examining reliability of the COPS were used. Split-half reliability coefficients range in magnitude from .86 to .95 thereby demonstrating internal consistency of the scales. Test retest correlations (one week interval) ranged in magnitude between .81 and .91, further demonstrating the reliability of the COPS.

The Administration-Interpretation Device for the California Occupational Preference Survey (COPS/AID)

The COPS/AID is an audio-visual kit consisting of a 35mm filmstrip with accompanying cassette tape and filmstrip guide. These materials are designed to be used with many different sound and filmstrip machines. The Hitachi Sound Projector SPR770 was used in this study. This machine is a combination filmstrip-cassette tape player featuring a four by five inch viewing screen and easy to understand controls.

"The filmstrip, cassette tape and guide are organized to accompany the self-scoring edition of the COPS, and the Self-Interpretation Guide and Profile Sheet for the COPS. The materials take a student through all the necessary steps in the administration, scoring, and interpretation of the COPS. The filmstrip has programmed pauses which allow individual students to work and progress at their own rate. Both the filmstrip and audio cassette are also organized so that students can play back or review selected parts of the filmstrip several times if necessary." (Jacobsen, 1972)

The COPS Visuals

The COPS visuals are a set of overhead transparencies developed to be used as a video aid in the administration, scoring and/or interpretation of the COPS. (Appendix C) They were used by the counselor in interpreting the COPS to the control group. The overhead pictures are nearly identical to the filmstrip contained in the COPS/AID. The counselor must develop his own dialogue to accompany the transparencies.

The Student Questionnaire

A student questionnaire was developed to measure retention of information presented during the COPS administration, retention and recognition of high and low scores and feelings regarding the method of administration. Several items concerned how much they discussed their COPS scores with parents, teachers, counselors and friends, and whether they had or planned to seek further career information as a result of taking this survey. (Appendix D)

A sample questionnaire was administered to eight experimental students. In a discussion which followed, it was determined all of the questionnaire items were clearly understood. However, in reviewing the responses, it appeared necessary to make several changes. Two true - false questions were deleted and two new items (#1 and #2) added. Since very few students were able to recall their results question 18, regarding recognition of interest areas

was included in an attempt to obtain more significant results.

Procedures

A list of control group students was sent to each teacher with the request to release them from class to report to the cafeteria. When the students had gathered, their counselor explained the need for their cooperation in taking the COPS. He administered the self-scoring edition of the COPS to groups ranging in size from about twenty to thirty students. The students did not score their own surveys. The students were told they would be called in again to receive their scores. The surveys were hand-scored by the counselor and profile sheets made for each student. Approximately three weeks after the survey was administered, the control group was called in groups of thirty for group interpretation of the COPS results. The counselor used the overhead transparencies (see Appendix C) to aid in the interpretation. The students were allowed to keep their profile sheets.

The experimental group was called six at a time by individual passes into the library. They were greeted by one of the counselors who explained the student was called in to take the COPS. The student was seated at a study carrel which contained the Hitachi, COPS/AID and the self-scoring edition of the COPS. The machine was explained to the student who then, on his own, proceeded to administer, score and interpret his COPS. Any questions

the students had were answered immediately by the counselor. The five counselors in the school each took turns assisting the experimental groups. The experimental students were also allowed to keep their profile sheets. The counselors recorded the students' three high scores and three low scores for use in the analysis.

One month after the completion of the interpretations, the questionnaires were administered. A list was sent to the teachers asking that the control group be dismissed one period and the experimental the next. The students were told they had been called in regarding the COPS they had taken. They were thanked for their cooperation and were asked to complete the questionnaire so that a study could be undertaken to detemine which method of administering the survey might be the best. They were given the first part of the questionnaire containing items one through seventeen. They were asked to answer the items individually and as honestly as possible. When the student handed in the questionnaire, he was given the second part which lists the fourteen occupational categories. They were asked to go to the other side of the room and mark their three highest scores and three lowest scores. We arranged to have this last page answered separately and away from other students working on the first part of the questionnaire to avoid contamination.

Since all of the students did not show up at the first session, several attempts were made following the above procedures. After about eighty-five percent of the students

had been reached, it was determined the above procedure for calling a small number of students would be ineffective. The remaining students were called in via room passes sent directly to the classroom at the time the student was requested. The only other change in procedure was that the library was used instead of the cafeteria. After four attempts were made to reach each student we concluded the sessions. The percentage who took the test but didn't show up for interpretation sessions were 16.16% of the control group, 12.79% of the experimental group.

Statistical Analyses

The questionnaires were scored by hand by a classified clerk in the district. One point was given for each correct answer for items one through four involving retention of information presented in the COPS. One point was also given for each correct response for items sixteen through eighteen involving recollection and recognition of high and low interest areas. A correct response here was a match between high and low interests recalled or recognized and the actual high and low interests as shown on the student profile sheets.

The questionnaires were then card punched for use in the computer. Chi square tests were computed for each item on the questionnaire using the Statistical Package for the Social Sciences. This package applies the Yates correction to 2 x 2 contingency tables. 2 x 4 tables which contained cell values of less than five in twenty percent of the cells were collapsed into 2 x 2 tables and computed by hand.

Control variables used were group type (control or experimental), sex of subject (boy or girl), and reading score (high or low). One-hundred-and-five comparisons were made.

CHAPTER IV

RESULTS

The primary objective of this study was to determine whether students could self-administer, self-score and self-interpret the California Occupational Preference Survey, with the aid of a multi-media device as effectively as could students who took the survey by the conventional group method which involved counselor administration, scoring and interpretation. Of secondary interest were how the students used the survey information and how they felt about the method of presentation.

This chapter will be organized around the hypothesis stated in Chapter I.

Tables I through XII contain the principal statistical results of the study. The significance level selected for this study was .05. The total N varies throughout the study due to the failure of some subjects to answer each questionnaire item. Therefore, N = number of responses to that particular item.

Hypothesis #1

> There is no significant difference between the experimental group (which self-administered, self-scored and self-interpreted the California Occupational Preference Survey (COPS) with the aid of a multi-media device) and the control group (which took the COPS in the conventional group method involving counselor administration, scoring and interpretation) in the retention of specific

information presented in the COPS.

The questionnaire items which pertain to this hypothesis are:

TRUE	FALSE		
____	____	1.	Determining your interests is the first state of the "tentative" period of career decision-making.
____	____	2.	The asterisk (*) which followed the page number of the occupations listed on your profile sheet indicated professional occupations.
____	____	3.	The COPS materials defined "skilled occupations" as those which generally require graduation from a four-year college or stringent aptitude qualifications.
____	____	4.	Your scores were marked on a graph which compared the degree of your interest with those of other students of the same sex and educational level.

Table I gives the results of the analyses.

No significant difference was found between the control and experimental groups in the number of correct responses to items 1-4. The null hypothesis was upheld. The majority of students in both groups (68.9% of the control and 71.1% of the experimental) responded correctly to two or three items.

Table I

CROSSTABULATION OF EXPERIMENTAL/CONTROL STUDENTS BY NUMBER OF CORRECT RESPONSES TO ITEMS 1-4

EXPERIMENTAL/CONTROL

By	Controlling for	X^2
Number Correct Responses to Items 1 - 4	Experimental/Control	4.3181

Hypothesis #2

There is no significant difference between high and low readers within and between the control and experimental groups in the retention of specific information presented in the California Occupational Preference Survey.

The questionnaire items which pertain to this hypothesis are:

TRUE	FALSE		
____	_____	1.	Determining your interests is the first state of the "tentative" period of career decision-making.
____	_____	2.	The asterisk (*) which followed the page number of the occupations listed on your profile sheet indicated professional occupations.
____	_____	3.	The COPS materials defined 'skilled occupations' as those which generally require graduation from a four year college or stringent aptitude qualifications.
____	_____	4.	Your scores were marked on a graph which compared the degree of your interest with those of other students of the same sex and educational level.

Table II gives the results of the analyses.

No significant differences were found between high and low readers within the control group; within the experimental group; or between the control and experimental groups. The null hypothesis was upheld.

Table II

CROSSTABULATIONS OF READING SCORE BY GROUP FOR NUMBER OF CORRECT RESPONSES TO ITEMS 1-4

CONTROL GROUP

By	Controlling for	X^2
Number Correct Responses to Items 1-4	Boys Hi/Lo Readers	5.1217
Number Correct Responses to Items 1-4	Girls Hi/Lo Readers	1.7982
Number Correct Responses to Items 1-4	Group Hi/Lo Readers	6.0178

EXPERIMENTAL GROUP

By	Controlling for	X^2
Number Correct Responses Items 1-4	Boys Hi/Lo Readers	5.3890
Number Correct Responses Items 1-4	Girls Hi/Lo Readers	2.3894
Number Correct Responses Items 1-4	Group Hi/Lo Readers	4.8227

EXPERIMENTAL/CONTROL

By	Controlling for	X^2
Number Correct Responses Items 1-4	High Readers C/Ex	2.0754
Number Correct Responses Items 1-4	Low Readers C/Ex	7.2469

Hypothesis #3

There is no significant difference between the control and experimental groups in the number of high interest areas recalled.

The questionnaire item which pertains to this hypothesis is:

16. Please list the three areas in which you received your highest scores on the COPS.

(1) _____

(2) _____

(3) _____

Table III gives the results of the analysis.

No significant difference was found between the control and experimental groups in the number of high interest areas recalled. The null hypothesis was upheld.

Table III

CROSSTABULATION OF EXPERIMENTAL/CONTROL STUDENTS BY NUMBER OF HIGH INTEREST AREAS RECALLED

By	Controlling for	X^2
Number High Interest Areas Recalled	Experimental/Control	3.8457

Hypothesis #4

There is no significant difference between the control and experimental groups in the number of low interest areas recalled.

The questionnaire item which pertains to the hypothesis is:

17. Please list the three areas in which you received your lowest scores on the COPS.

(1) _____

(2) _____

(3) _____

Table IV gives the results of the analysis.

A significant difference (see Table IV) was found between the total control and total experimental group. The control group tended to recall more of the low interest areas than did the experimental group. It is of interest to note that only one student out of a total N of 157 was able to recall three low interest areas. The null hypothesis is rejected.

Table IV

CROSSTABULATION OF EXPERIMENTAL/CONTROL GROUPS BY NUMBER OF LOW INTEREST AREAS RECALLED

	Number of Low Interest Areas Recalled		
	None/One	Two/Three	Total
Group Control	68	6	74
Experimental	76	7	83
Total	144	13	157

$X^2 = .00546$ 1 df

Hypothesis #5

> There is no significant difference in number of high interest areas recalled between high and low readers, boys and girls, within and between the control and experimental groups.

The questionnaire item which pertains to this hypothesis is:

16. Please list the three areas in which you received your highest scores on the COPS.

(1) _____

(2) _____

(3) _____

Table V gives the results of the analyses.

No significant differences were found. Although there was a slight tendency for experimental high readers to recall more high interest areas, the difference was not significant. The null hypothesis 5 is upheld.

Table V

CROSSTABULATION OF READING SCORE BY GROUP AND NUMBER OF HIGH INTEREST AREAS RECALLED

CONTROL GROUP

By	Controlling for	X^2
Number High Interest Areas Recalled	Boys Hi/Lo Readers	3.5627
Number High Interest Areas Recalled	Girls Hi/Lo Readers	2.8285
Number High Interest Areas Recalled	Group Hi/Lo Readers	6.2903

EXPERIMENTAL GROUP

By	Controlling for	X^2
Number High Interest Areas Recalled	Boys Hi/Lo Readers	2.025
Number High Interest Areas Recalled	Girls Hi/Lo Readers	2.0614
Number High Interest Areas Recalled	Group Hi/Lo Readers	6.9523

EXPERIMENTAL/CONTROL

By	Controlling for	X^2
Number High Interest Areas Recalled	High Readers Ex/C	5.6116
Number High Interest Areas Recalled	Low Readers Ex/C	1.7407

Hypothesis #6

> There is no significant difference in the number of low interest areas recalled between high and low readers, boys and girls, within and between the control and experimental groups.

The questionnaire item which pertains to this hypothesis is:

> 17. Please list the three areas in which you received your lowest scores on the COPS.
>
> (1) _____
>
> (2) _____
>
> (3) _____

Table VI gives the results of the analyses.

A significant difference was found in recalling low interest areas between high reading control and high reading experimental groups. More experimental low readers (27) recalled none of the low interest areas than did the control group low readers (14). (Table VIa)

No significant difference was found between high and low reading experimental boys and girls; high and low reading control boys and girls; or within the total experimental or total control groups. Hypothesis 6 is partially accepted.

Table VI

CROSSTABULATIONS OF READING SCORES BY GROUP AND NUMBER OF LOW INTEREST AREAS RECALLED

CONTROL GROUP

By	Controlling for	X^2
Number Low Interest Areas Recalled	Boys Hi/Low Readers	0.9038
Number Low Interest Areas Recalled	Girls Hi/Low Readers	4.3639
Number Low Interest Areas Recalled	Control Group Hi/Low Readers	4.4736

EXPERIMENTAL GROUP

By	Controlling for	X^2
Number Low Interest Areas Recalled	Boys Hi/Low Readers	1.3430
Number Low Interest Areas Recalled	Girls Hi/Low Readers	3.4568
Number Low Interest Areas Recalled	Experimental Group Hi/Low Readers	4.4866

EXPERIMENTAL/CONTROL

By	Controlling for	X^2
Number Low Interest Areas Recalled	High Readers Control/ Experimental	7.2180*
Number Low Interest Areas Recalled	Low Readers Control/ Experimental	6.2592

* Significant at .05 level

Table VIa

CROSSTABULATION OF EXPERIMENTAL/CONTROL GROUPS
BY NUMBER OF LOW INTEREST AREAS RECALLED FOR HIGH READERS

Group	Number of Low Interest Areas Recalled				
	None	One	Two	Three	Total
Control High Readers	14	18	1	0	33
Experimental High Readers	27	12	6	0	45
Total	41	30	7	0	78

$X^2 = 7.21806^*$ 2 df

* Significant at .05 level

Hypothesis #7

> There is no significant difference in the number of high interest areas recognized between high and low readers, boys and girls, within and between the control and experimental groups.

The questionnaire item which pertains to this hypothesis is Number 18a:

> The fourteen occupational groupings of the COPS are listed below. Place an H next to the 3 areas in which you received your highest scores.
>
> (See Appendix B for listing of occupational groups)

Table VII gives the results of the analyses.

A significant difference (see Table VIIa) was found to exist between high and low experimental boys. 80% (16) high readers recognized two or three high interest areas compared to 38.1% (8) low readers. High readers tended to recognize more high interest areas than did low readers.

A significant difference (see Table VIIb) was found to exist between high and low readers within the total experimental group. More high readers (30 students (66.7%)) recalled two or three high interest areas than did the low readers (15 students (39.4%)).

No significant difference was found between high and low reading experimental girls; high and low reading control boys and girls; or within the total control group. No significant difference was found between the total control group and the total experimental group. Hypothesis 7 is partially accepted.

Table VII

CROSSTABULATION BY GROUP AND READING FOR NUMBER OF HIGH INTEREST AREAS RECOGNIZED

By	Controlling for	X^2
CONTROL GROUP BY READING		
Number High Interest Areas Recognized	Control Boys Hi/Low Readers	4.0643
Number High Interest Areas Recognized	Control Girls Hi/Low Readers	2.5084
Number High Interest Areas Recognized	Control Group Hi/Low Readers	5.1010
EXPERIMENTAL GROUP BY READING		
Number High Interest Areas Recognized	Boys Hi/Low Readers	10.5767*
Number High Interest Areas Recognized	Girls Hi/Low Readers	4.9107
Number High Interest Areas Recognized	Experimental Group Hi/Low Readers	8.9002*
EXPERIMENTAL/CONTROL		
Number High Interest Areas Recognized	High Readers Control/Exp.	2.7071
Number High Interest Areas Recognized	Low Readers Control/Exp.	4.5955
Number High Interest Areas Recognized	Experimental/Control Hi/Low Readers	6.3497

* Significant at .05 level

Table VIIa

CROSSTABULATION OF READING SCORE/EXPERIMENTAL BOYS
BY NUMBER OF HIGH INTEREST AREAS RECOGNIZED

Experimental Boys	Number of High Interest Areas Recognized: None/One	Two/Three	Total
Top Half	4	16	20
Bottom Half	13	8	21
Total	17	24	41

$X^2 = 3.522$ 1 df

---

* Significant at .05 level.

Table VIIb

CROSSTABULATION OF READING SCORE/EXPERIMENTAL GROUP BY NUMBER OF HIGH INTEREST AREAS RECOGNIZED

Number High Interest Areas Recognized

Experimental Group	None	One	Two	Three	Total
Top Half	4	11	23	7	45
Bottom Half	10	13	14	1	38
Total	14	24	37	8	83

$X^2 = 8.90023^*$ 3 df

* Significant at .05 level

Hypothesis #8

> There is no significant difference in the number of low interest areas recognized between high and low readers, boys and girls within and between the control and experimental groups.

The questionnaire item which pertains to this hypothesis is 18b:

> The fourteen occupational groupings of the COPS are listed below. Place an L next to the 3 areas in which you received your lowest scores.

Table VIII gives the results of the analyses.

A significant difference (see Table VIIIa) was found between high and low reading experimental girls. 88% (22) of the high readers recognized one or two low interest areas, compared to 47.1% (8) of the low readers. None of the experimental girls recognized three low interest areas. High reading experimental girls recognized more low interest areas than low reading experimental girls.

No significant differences were found between high and low reading experimental boys; within the total experimental group; between high and low reading control boys or girls; within the total control group; or between the total control and total experimental groups. Hypothesis 8 is partially accepted.

Table VIII

CROSSTABULATIONS OF GROUP BY READING GROUP
FOR NUMBER OF LOW INTEREST AREAS RECOGNIZED

CONTROL GROUP BY READING

By	Controlling for	X^2
Number Low Interest Areas Recognized	Boys Hi/Low Readers	2.2184
Number Low Interest Areas Recognized	Girls Hi/Low Readers	0.8633
Number Low Interest Areas Recognized	Control Group Hi/Low Readers	2.3079

EXPERIMENTAL GROUP BY READING

By	Controlling for	X^2
Number Low Interest Areas Recognized	Boys Hi/Low Readers	3.5116
Number Low Interest Areas Recognized	Girls Hi/Low Readers	8.8300*
Number Low Interest Areas Recognized	Experimental Group Hi/Low Readers	5.8290

EXPERIMENTAL/CONTROL BY READING

By	Controlling for	X^2
Number Low Interest Areas Recognized	High Readers Control/Exp.	0.8056
Number Low Interest Areas Recognized	Low Readers Control/Exp.	3.2338

EXPERIMENTAL/CONTROL

By	Controlling for	X^2
Number Low Interest Areas Recognized	Experimental/Control Hi/Low Readers	3.1022

* Significant at .05 level

Table VIIIa

CROSSTABULATION OF EXPERIMENTAL GIRLS/READING SCORE BY NUMBER OF LOW INTEREST AREAS RECOGNIZED

Experimental Girls	Number of Low Interest Areas Recognized				
	None	One	Two	Three	Total
Top Half	3	13	9	0	25
Bottom Half	9	6	2	0	17
Total	12	19	11	0	42

$X^2 = 8.83004^*$ 2 df

* Significant at .05 level

Hypothesis #9

> Reading ability or sex of subject has no significant effect on how well the students like their method of survey presentation.

The questionnaire item which pertains to this hypothesis is:

15. How did you like the way you took the survey and received your scores?

_____ (1) I liked the way I took it very much.

_____ (2) I liked it.

_____ (3) It was O.K.

_____ (4) I was very uncomfortable about the way I took it.

Table IX gives the results of the analyses.

Reading ability and sex of subject were not found to have significant effects between high reading control and high reading experimental; low reading control and low reading experimental; high and low reading control boys and girls; between high and low reading experimental boys and girls; within the total control group, or within the total experimental group. Hypothesis 9 is accepted.

TABLE IX

CROSSTABULATIONS OF GROUP BY LIKING
FOR SURVEY PRESENTATION

CONTROL GROUP		
By	Controlling for	χ^2
Reading Score	Boys	1.4[illegible]9
Reading Score	Girls	1.[illegible]90
Reading Score	Control Group	0.9143
Sex of Subject	Control Group	3.1657

EXPERIMENTAL GROUP		
By	Controlling for	χ^2
Reading Score	Boys	2.9773
Reading Score	Girls	0.2718
Reading Score	Experimental Group	2.5530
Sex of Subject	Experimental Group	3.6199

EXPERIMENTAL/CONTROL		
By	Controlling for	χ^2
Reading Score	High Readers	6.88958
Reading Score	Low Readers	2.5768

Hypothesis #10

There is no significant difference between the control and experimental groups in how well they understand their COPS scores.

Questionnaire items which pertain to this hypothesis are:

5. How well do you feel that you understand what your interest scores on the COPS mean?

_____ (1) Very well--I understand them completely.

_____ (2) Good--I understand them O.K.

_____ (3) Very little--I have several questions.

_____ (4) Not at all--I don't understand them.

6. Would you like more help in explaining what your COPS scores mean?

_____ (1) Yes.

_____ (2) No.

No significant differences were found to exist between boys and girls within the experimental group; between control and experimental boys; between control and experimental girls; or between the total control group and the total experimental group. Both control and experimental students tended to feel they understood the COPS scores good or very well and did not need any more help in understanding them. Hypothesis 10 is upheld.

Table X

CROSSTABULATION OF GROUP/SEX OF SUBJECT AND UNDERSTANDING COPS SCORES AND NEEDING MORE HELP TO UNDERSTAND

CONTROL GROUP BY SEX

By	Controlling for	X^2
Understanding COPS Scores	Control Group	3.9102
Needing More Help to Understand	Control Group	0.2823

EXPERIMENTAL GROUP BY SEX

By	Controlling for	X^2
Understanding COPS Scores	Experimental Group	0.3546
Need More Help to Understand	Experimental Group	0.0711

EXPERIMENTAL/CONTROL/SEX OF SUBJECT

By	Controlling for	X^2
Understanding of COPS Scores	Boys	1.7767
Understanding of COPS Scores	Girls	1.6535
Need More Help to Understand	Boys	0.0473
Need More Help to Understand	Girls	0.0

EXPERIMENTAL/CONTROL

By	Controlling for	X^2
Understanding of COPS Scores	Experimental/Con.	0.9715
Need More Help to Understand	Experimental/Con.	0.00004

Hypothesis #11

There is no significant difference between the control group and the experimental group in the amount they discuss their COPS results with parents, teachers, friends or counselors.

The questionnaire items which pertain to this hypothesis are:

8. How much have you discussed your COPS scores with your parents?

_____ (1) A lot--we had a long discussion.
_____ (2) Some--we talked about them.
_____ (3) Very little--I showed them the COPS results but we did not discuss them.
_____ (4) Not at all--no mention of the COPS scores.

9. How much have you discussed your COPS scores with your teachers?

_____ (1) A lot--we had a long discussion.
_____ (2) Some--we talked about them.
_____ (3) Very little--I showed them the COPS results but we did not discuss them.
_____ (4) Not at all--no mention of the COPS scores.

10. How much have you discussed your COPS scores with your friends?

_____ (1) A lot--we had a long discussion.
_____ (2) Some--we talked about them.
_____ (3) Very little--I showed them the COPS results but we did not discuss them.
_____ (4) Not at all--no mention of the COPS scores.

11. How much have you discussed your COPS scores with your counselor?

_____ (1) A lot--we had a long discussion.
_____ (2) Some--we talked about them.
_____ (3) Very little--I showed them the COPS results but we did not discuss them.
_____ (4) Not at all--no mention of the COPS scores.

Significant differences were found between boy and girl control groups in amount of discussion with parents and friends. (Tables XIa and XIb) In both cases the control girls discussed their COPS results with parents and friends more than did the control boys. There was no significant difference between

the control group boys and girls in the amount of discussion with teachers and counselors.

No significant difference was found between experimental boys and girls; or between control boys and girls and experimental boys and girls, or between total control and total experimental.

No significant difference was found between the total control and the total experimental groups in the amount of discussion with parents, friends or counselors.

The questionnaire results showed both groups tended to discuss their COPS scores more with parents and friends than with teachers and counselors.

Hypothesis 11 is partially accepted.

Table XI

CROSSTABULATIONS OF GROUP AND SEX OF SUBJECT AND DISCUSSION OF COPS WITH PARENTS, FRIENDS, TEACHERS AND COUNSELORS

CONTROL GROUP BY SEX

By	Controlling for	X^2
Discussion of COPS with Parents	Control group	12.7237*
Discussion of COPS with Teachers	Control group	0.4503
Discussion of COPS with Friends	Control group	17.0673*
Discussion of COPS with Counselor	Control group	1.5365

EXPERIMENTAL GROUP BY SEX

By	Controlling for	X^2
Discussion of COPS with Parents	Experimental group	3.2163
Discussion of COPS with Teachers	Experimental group	1.0129
Discussion of COPS with Friends	Experimental group	5.0625
Discussion of COPS with Counselor	Experimental group	1.3333

CONTROL/EXPERIMENTAL BY SEX

By	Controlling for	X^2
Discussion of COPS with Parents	Boys	2.4480
Discussion of COPS with Parents	Girls	6.4055
Discussion of COPS with Teachers	Boys	4.5319
Discussion of COPS with Teachers	Girls	4.2451
Discussion of COPS with Friends	Boys	6.5263
Discussion of COPS with Friends	Girls	2.6628
Discussion of COPS with Counselors	Boys	1.4243
Discussion of COPS with Counselors	Girls	2.4446

CONTROL/EXPERIMENTAL

By	Controlling for	X^2
Discussion of COPS with Parents	Experimental/Control	1.9702
Discussion of COPS with Teachers	Experimental/Control	.796
Discussion of COPS with Friends	Experimental/Control	5.2539
Discussion of COPS with Counselor	Experimental/Control	2.7580

* Significant at .05 level

Table XIa

CROSSTABULATION OF BOY/GIRL CONTROL GROUPS BY
DISCUSSION OF COPS WITH PARENTS

Control Group	Discussion of COPS with Parents				
	A Lot	Some	Very Little	Not at All	Total
Boys	1	8	12	12	33
Girls	3	25	8	5	41
Total	4	33	20	17	74

$X^2 = 12.72377^*$ 3 df

* Significant at .05 level

Table XIb

CROSSTABULATION OF BOY/GIRL CONTROL GROUPS BY DISCUSSION OF COPS WITH FRIENDS

Control Group	Discussion of COPS with Friends				
	A Lot	Some	Very Little	Not at All	Total
Boys	1	5	11	14	31
Girls	6	20	11	4	41
Total	7	25	22	18	72

$X^2 = 17.06731$* 3 df

* Significant at .05 level

Hypothesis #12

There is no significant difference between the control and experimental groups in how they use their COPS results.

The questionnaire items which pertain to this hypothesis are:

7. How much do you feel you will use the results from the COPS to select your classes next semester?

_____ (1) A Lot.

_____ (2) Some.

_____ (3) A little.

_____ (4) Not at all.

12. Have you gathered any other information on your own concerning the careers mentioned on your COPS scoresheet?

_____ (1) Yes, quite a bit.

_____ (2) Yes, some.

_____ (3) Yes, very little.

_____ (4) No, none at all

13. Now that you have taken the COPS do you think you will look up further information about careers?

_____ (1) Yes.

_____ (2) No.

Table XII gives the results of the analyses.

No significant differences were found. The null hypothesis was upheld. The questionnaires showed more students, both control and experimental felt they would use their COPS scores in future class selection. Although 34.7% of the control group and 48.8% of the experimental group had not gathered any other career information, 78.3% of the control group and 67.6% of the experimental group felt they would do so in the future.

Table XII

CROSSTABULATION OF GROUP AND SEX OF SUBJECT AND OTHER INFORMATION GATHERED, SEEK MORE INFORMATION AND USE OF COPS IN CLASS SELECTION

CONTROL GROUP BY SEX

By	Controlling for	X^2
Other information gathered	Control group	4.0924
Will now seek more information	Control group	0.4998
Use of COPS in class selection	Control group	0.52441

EXPERIMENTAL GROUP BY SEX

By	Controlling for	X^2
Other information gathered	Experimental group	1.3232
Will now seek more information	Experimental group	2.0113
Use of COPS in class selection	Experimental group	7.4504

EXPERIMENTAL/CONTROL GROUPS BY SEX

By	Controlling for	X^2
Other information gathered	Boys	3.53026
Other information gathered	Girls	5.0521
Will now seek more information	Boys	0.7927
Will now seek more information	Girls	0.0837
Use of COPS in class selection	Boys	1.9720
Use of COPS in class selection	Girls	5.5809

EXPERIMENTAL/CONTROL GROUPS

By	Controlling for	X^2
Other information gathered	Experimental/Control	5.1635
Will now seek more information	Experimental/Control	1.5546
Use of COPS in class selection	Experimental/Control	2.9865

Hypothesis #13

There is no significant difference between the control and experimental groups regarding their feeling that the COPS is worthwhile.

The questionnaire item which pertains to this hypothesis is:

14. Do you feel it was worthwhile for you to take the COPS?

_____ (1) Yes, it was extremely helpful.

_____ (2) Yes, it was somewhat helpful.

_____ (3) Yes, it gave me a little help.

_____ (4) No, it didn't help me at all.

Table XIII gives the results of the analyses.

No significant differences were found. The null hypothesis was upheld. Most of the students in both groups felt the COPS was worthwhile. 10% (7) of the control students and 8.8% (7) of the experimental students felt the COPS was not at all worthwhile.

Table XIII

CROSSTABULATION OF GROUP AND SEX OF SUBJECT
BY FEELING COPS WORTHWHILE

CONTROL GROUP BY SEX		
By	Controlling for	X^2
Feel COPS worthwhile	Control group	6.5514
EXPERIMENTAL GROUP BY SEX		
By	Controlling for	X^2
Feel COPS worthwhile	Experimental group	0.9668
EXPERIMENTAL/CONTROL BY SEX		
By	Controlling for	X^2
Feel COPS worthwhile	Boys	5.8298
Feel COPS worthwhile	Girls	2.4380
EXPERIMENTAL/CONTROL		
By	Controlling for	X^2
Feel COPS worthwhile	Experimental/Control	5.4381

CHAPTER V

SUMMARY, LIMITATIONS, DISCUSSION AND IMPLICATIONS

The purpose of this study was to determine whether students could self-administer, self-score, and self-interpret the California Occupational Preference Survey (COPS) with the aid of a multi-media device, as effectively as similar students could take the survey in the conventional group method which involves counselor administration, scoring and interpretation. Of secondary interest were how the students used the survey and how they felt about the method of presentation.

Summary

The sample of one-hundred-fifty-eight students consisted of two groups, experimental and control, of ninth-grade students matched for sex and reading ability. Chi square tests were performed to investigate the following hypotheses:

1. There is no significant difference in the retention of specific information presented in the California Occupational Preference Survey (COPS) between the experimental group (which self-administered, self-scored and self-interpreted the COPS with the aid of a multi-media device) and the control group (which took the COPS in the conventional group method involving counselor administration, scoring and interpretation. This null hypothesis is accepted.

2. There is no significant difference between high and low readers within and between control and experimental groups in the retention of specific information presented in the COPS. This null hypothesis is accepted.
3. There is no significant difference between the control and experimental groups in the number of high interest areas recalled. This null hypothesis is accepted.
4. There is no significant difference between the control and experimental groups in the number of high interest areas recalled.

   The control group recalled significantly more low interest areas than the experimental group. The null hypothesis is rejected.
5. There is no significant difference in number of high interest areas recalled between high and low readers, boys and girls, within and between the control and experimental groups. The null hypothesis is accepted.
6. There is no significant difference in number of low interest areas recalled between high and low readers, boys and girls, within and between the control and experimental groups.

   Control group high readers recalled significantly more low interest areas than did the experimental group high readers. No significant difference was found between high and low reading experimental boys and girls; high and low reading control boys and girls; or within the total experimental or total control groups. Hypothesis six is partially accepted.

7. There is no significant difference in the number of high interest areas recognized between high and low readers, boys and girls, within and between the control and experimental groups.

   High reading experimental boys recalled significantly more high interest areas than high reading experimental girls. High readers within the total experimental group recalled significantly more high interest areas than the experimental low readers. Hypothesis seven is partially accepted.

8. There is no significant difference in the number of low interest areas recognized between high and low readers, boys and girls within and between the control and experimental groups.

   High reading experimental girls recognized more low interest areas than low reading experimental girls. No significant difference was found between total control and total experimental groups. Hypothesis eight is partially accepted.

9. Reading ability or sex of subject has no significant effect on how well the students like their method of survey presentation. This null hypothesis is accepted.

10. There is no significant difference between the control and experimental groups in how well they understand their COPS scores. This null hypothesis is accepted.

11. There is no significant difference between the control group and the experimental group in the amount they discuss their COPS results with parents, teachers, friends or counselors.

The control girls discussed their COPS results with parents and friends significantly more than did the control boys. There was no significant difference between total control and total experimental regarding amount of discussion with friends, parents, teachers or counselors. Hypothesis eleven is partially accepted.

12. There is no significant difference between the control and experimental groups in how they use their COPS results. This null hypothesis is accepted.
13. There is no significant difference between the control and experimental groups regarding their feeling that the COPS is worthwhile. This null hypothesis is accepted.

Limitations

Several limitations were identified concerning the population, the time, and the counselor who worked with the control group.

The population from which the sample was drawn consisted of only ninth-grade students simply because they were the only class for which there were recent reading scores. It was necessary to have recent reading scores to determine the effect of reading ability on the study. Many of the profile sheets indicated almost insignificant differences between degrees of interest in the fourteen occupational categories. Ninth-grade students might not be as concerned about occupational interest areas as the upper classes.

The inability to locate students to complete the questionnaires was a limitation which plagues most school related studies.

The time of the year during which testing occurred was a limitation. The COPS and interpretations were given shortly before Christmas vacation. The questionnaires were given soon after Christmas vacation. It was felt that this time of year is too hectic to expect the ninth-grade students to get very involved with the COPS or to remember their results obtained on it.

The same counselor was involved in all contacts with the control group. This may have added some positive reinforcement for this group to remember their results.

While the control group had at least two and sometimes three contacts with this counselor, the experimental group had only one limited contact with one of the five counselors.

Discussion

Considering the limitations just described and the relatively small proportion of significant findings, it is concluded that students can self-administer, self-score and self-interpret the California Occupational Preference Survey, with the aid of a multi-media device, as effectively but seldom more effectively than a similar group can take the COPS in the conventional group method involving counselor administration, scoring and interpretation.

There appeared to be no discernable pattern in the comparisons which proved to be significant. Slight tendencies could be noted to show experimental high readers recall more high interest areas, while the control group recalled more low interest areas.

Implications for use of the COPS

Some practical applications can be suggested by the results of this study. Since it was concluded students can effectively self-administer, self-score and self-interpret the COPS, it is recommended a multi-media aid of the type used in this study be made available in each high school career information center or guidance office along with the COPS. These materials would be available to the

student when he has optimum need of them. When a student wishes to assess his occupational interests, it will not be necessary for him to wait until his counselor can arrange for a group of students to take the survey. Likewise, he needn't suffer a sometimes long wait for his survey to be machine scored and interpreted. Instead, the student can have the information he wants and needs, when he wants and needs it.

Involvement of counselor time is a second benefit. Since the counselor is not involved in lengthy survey administration and interpretations, he will have more time available to discuss the implications of the results with the students.

The major limitation of this study involved the use of ninth-grade students as subjects. It is hoped that since there were no major significant findings within this sample, the higher classmen would possibly do even better, due to a higher degree of interest, motivation and perhaps reading ability.

Implications for future research

It is recommended future studies involve upper class high school students. Future studies should be conducted at a time of year other than spanning the Christmas holidays. Another possible area of consideration would involve availability of a career information center and the effect it might have on use of COPS results. Comparisons between the different class levels might also yield useful results.

APPENDIX

APPENDIX A - California Occupational Preference Survey

APPENDIX B - Self-interpretation Guide and Profile Sheet for the California Occupational Preference Survey

APPENDIX C - The California Occupational Preference Survey Visuals

APPENDIX D - Student Questionnaire

APPENDIX A

CALIFORNIA OCCUPATIONAL PREFERENCE SURVEY

APPENDIX B

SELF-INTERPRETATION GUIDE AND PROFILE SHEET FOR THE CALIFORNIA OCCUPATIONAL PREFERENCE SURVEY

Appendix B

PAGES _____ OF THIS DOCUMENT HAVE BEEN REMOVED BECAUSE THEY CONTAINED COPYRIGHTED MATERIAL.

APPENDIX C

THE CALIFORNIA OCCUPATIONAL PREFERENCE SURVEY VISUALS

PAGES Appendix C OF THIS DOCUMENT
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APPENDIX D

STUDENT QUESTIONNAIRE

Boy Girl

Your Name (please print) _____

STUDENT QUESTIONNAIRE

California Occupational Preference Survey (COPS)
Method Comparison

You recently took the California Occupational Preference Survey (COPS). We are trying to determine which method of taking this survey and explaining the results is best. We would appreciate your cooperation in completing this questionnaire. Although your answers will be used to prepare a summary of student responses, your name will not appear on any reports.

Thank you very much for your cooperation.

WE WOULD LIKE TO KNOW HOW MUCH YOU REMEMBER ABOUT THE INFORMATION YOU WERE GIVEN ABOUT THE TEST ITSELF. THE FIRST FOUR QUESTIONS CONCERN THIS INFORMATION.

Please mark an X in the TRUE column if you feel the statement is true. Mark an X in the FALSE column if you feel the statement is false. Please answer every question.

TRUE	FALSE	
____	____	1. Determining your interests is the first state of the "tentative" period of career decision making.
____	____	2. The asterisk (*) which followed the page number of the occupations listed on your profile sheet indicated professional occupations.
____	____	3. The COPS materials defined 'skilled occupations' as those which generally require graduation from a four year college or stringent aptitude qualifications.
____	____	4. Your scores were marked on a graph which compared the degree of your interest with those of other students of the same sex and educational level.

THE NEXT QUESTIONS CONCERN YOUR OWN PERSONAL FEELINGS ABOUT THE SURVEY.

Please mark an X in the space in front of the answer you select. Mark only one answer for each question. Please answer every question.

5. How well do you feel that you understand what your interest scores on the COPS mean?
   - ____ (1) Very well - I understand them completely.
   - ____ (2) Good - I understand them O.K.
   - ____ (3) Very little - I have several questions.
   - ____ (4) Not at all - I don't understand them.

6. Would you like more help in explaining what your COPS scores mean?
   - ____ (1) Yes
   - ____ (2) No

7. How much do you feel you will use the results from the COPS to select your classes next semester?
   - ____ (1) a lot
   - ____ (2) some
   - ____ (3) a little
   - ____ (4) not at all

8. How much have you discussed your COPS scores with your parents?
   - ____ (1) a lot - we had a long discussion.
   - ____ (2) some - we talked about them.
   - ____ (3) very little - I showed them the COPS results but we did not discuss them.
   - ____ (4) not at all - no mention of the COPS scores.

9. How much have you discussed your COPS scores with your teachers?

____ (1) a lot - we had a long discussion.
____ (2) some - we talked about them.
____ (3) very little - I showed them the COPS results but we did not discuss them.
____ (4) not at all - no mention of the COPS scores

10. How much have you discussed your COPS scores with your friends?

____ (1) a lot - we had a long discussion.
____ (2) some - we talked about them.
____ (3) very little - I showed them the COPS results but we did not discuss them.
____ (4) not at all - no mention of the COPS scores.

11. How much have you discussed your COPS scores with your counselor?

____ (1) a lot - we had a long discussion.
____ (2) some - we talked about them.
____ (3) very little - I showed them the COPS results but we did not discuss them.
____ (4) not at all - no mention of the COPS scores.

12. Have you gathered any other information on your own concerning the careers mentioned on your COPS scoresheet.

____ (1) yes, quite a bit.
____ (2) yes, some.
____ (3) yes, very little
____ (4) no, none at all

13. Now that you have taken the COPS do you think you will look up further information about careers?

____ (1) yes
____ (2) no

14. Do you feel it was worthwhile for you to take the COPS?

____ (1) yes, it was extremely helpful.
____ (2) yes, it was somewhat helpful.
____ (3) yes, it gave me a little help.
____ (4) no, it didn't help me at all.

THE COPS WAS ADMINISTERED TO SOME OF YOU BY MR. HOUGNON IN A GROUP SESSION. HE LATER EXPLAINED YOUR SCORES TO YOU. OTHERS OF YOU USED THE MACHINES IN THE LIBRARY TO TAKE THE SURVEY, SCORE IT, AND FIND OUT YOUR SCORES.

Which way did you take the survey?

_____group with Mr. Hougnon
_____machine in the library

15. How did you like the way you took the survey and received your scores?

____ (1) I liked the way I took it very much.

____ (2) I liked it.

____ (3) It was O.K.

____ (4) I was very uncomfortable about the way I took it.

YOUR SCORES WERE MARKED ON A GRAPH SHOWING YOUR AMOUNT OF INTEREST IN EACH OF FOURTEEN OCCUPATIONAL AREAS.

16. Please list the three areas in which you received your highest scores on the COPS.

(1) _____

(2) _____

(3) _____

17. Please list the three areas in which you received your lowest scores on the COPS.

(1) _____

(2) _____

(3) _____

Boy Girl

Name (please print)

18. THE FOURTEEN OCCUPATIONAL GROUPINGS OF THE COPS ARE LISTED BELOW. PLACE AN H NEXT TO THE 3 AREAS IN WHICH YOU RECEIVED YOUR HIGHEST SCORES. PLACE AN L NEXT TO THE 3 AREAS IN WHICH YOU RECEIVED YOUR LOWEST SCORES.

1. _____ SCIENCE - Professional: includes occupations concerned with discovery, observation and classification of facts and accumulation of knowledge.

2. _____ SCIENCE - Skilled: includes occupations concerned with accumulation and classification of facts, primarily in research support.

3. _____ TECHNICAL - Professional: includes positions of high responsibility in occupations concerned with manufacturing, construction, or transportation of products or utilities.

4. _____ TECHNICAL - Skilled: includes occupations concerned with manufacturing, construction, or transportation of products or utilities usually involving working with one's hands in a skilled occupation such as mechanic, technician, etc.

5. _____ OUTDOOR - includes occupations concerned with the growing of plants and animals and involving the cultivation and accumulation of crops and natural resources.

6. _____ BUSINESS - Professional: includes positions of high responsibility in commercial and governmental occupations concerned with financing, promotion, and the organization and efficient functioning of commercial and governmental enterprises, often involving convincing others of a point of view.

7. _____ BUSINESS - Skilled: includes commercial and governmental occupations concerned with financing, promotion and personal persuasion, and the organization of commercial and governmental enterprises.

8. _____ CLERICAL - includes occupations involving great attention to detail, accuracy, neatness, orderliness and speed, and including the observation, discrimination and recording or filing of information.

9. _____ LINGUISTIC - Professional: includes occupations concerned with written and oral communication and knowledge and skill in the use of language.

10. _____ LINGUISTIC - Skilled: includes occupations concerned with written and oral communication and skill in language usage often involving transcribing, correcting or otherwise facilitating communication.

11. _____ AESTHETIC - Professional: includes occupations in the fine arts involved with the application of individualized, creative artistic or musical talent and skill.

12. _____ AESTHETIC - Skilled: includes occupations involving the application of a natural, artistic or musical skill.

13. _____ SERVICE - Professional: includes occupations with a high degree of responsibility in catering to the personal needs, desires and welfare of others, usually involving interpersonal relations in face-to-face situations.

14. _____ SERVICE - Skilled: includes occupations catering to the personal tastes, desires and welfare of others and involving the provision of services to persons often in face-to-face situations.

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